

Claims:

1. A process for producing water-soluble or water-swellaible synthetic polymer products by free-radical polymerization in aqueous solution of acrylic acid and/or acrylic acid derivatives partially or completely neutralized with basic nitrogen compounds, characterized in that exceedingly low residual monomer levels are achieved by subsequent heating of the polymer products at a temperature of from 120 to 240°C.
2. The process according to claim 1, characterized in that ammonia, ammonium hydroxide, hydroxylamine, alkanolamines, or alkylamines and/or mixtures thereof are used as nitrogen compound.
3. The process according to claims 1 and 2, characterized in that ammonia, ammonium hydroxide, mono- or diethanolamine are preferably used as nitrogen compound.
4. The process according to claims 1 to 3, characterized in that the acid monomer component is neutralized with said nitrogen compound up to a neutralization level of from 10 to 100%.
5. The process according to claims 1 to 4, characterized in that monomers based on acrylic acid, methacrylic acid or derivatives of these carboxylic acids are subjected to polymerization, preferably as homo- or copolymers of acrylic, methacrylic acid, acrylamidopropanesulfonic acid, alkali or ammonium salts of these carboxylic acids, of acryl- or methacrylamide and derivatives thereof, of vinylpyrrolidone, and as copoly-

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mers of each other, or are used with other, only partially water-soluble monomers such as vinyl acetate.

6. The process according to claims 1 to 5, characterized in that at least one crosslinker based on a bi- or polyfunctional monomer is used in addition.
7. The process according to claims 1 to 6, characterized in that the polymer product is heated at a temperature of from 140 to 180°C.
8. The process according to claims 1 to 7, characterized in that polymer products having a content of residual monomer of less than 50 ppm, preferably less than 30 ppm are formed.
9. The process according to claims 1 to 8, characterized in that polymer products having a residual content of acrylamide of less than 10 ppm are formed.
10. Polymers based on acrylic acid and/or acrylic acid derivatives, obtained according to one or more of claims 1 to 9.
11. Use of the process products according to claims 1 to 9 for absorbing and/or retaining water and/or aqueous solutions, urine and body fluids, for subsequent controlled release of water and/or substances dissolved in aqueous media, for the manufacture of hygiene products, for potable water treatment, as thickening agents, as dispersants, and as flocculants for waste water treatment.

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